BOX – 10/785,046
Client/Matter: 081468-0308294

IN THE SPECIFICATION:

Page 1, delete the paragraph [0001] and replace it with the following new paragraph:

[0001] This application is a continuation of U.S. Application 10/307,485, filed December 2, 2002, now U.S. Patent 6,747,730, and claims priority to European Application 01310155.5, filed December 4, 2001, the entire contents of both of which are hereby incorporated in their entirety.

Page 1, delete the paragraph [0003] and replace it with the following new paragraph:

[0003] The term "patterning device" as here employed should be broadly interpreted as referring to device that can be used to endow an incoming radiation beam with a patterned cross-section, corresponding to a pattern that is to be created in a target portion of the substrate. The term "light valve" can also be used in this context. Generally, the pattern will correspond to a particular functional layer in a device being created in the target portion, such as an integrated circuit or other device (see below). An example of such a patterning device is a mask. The concept of a mask is well known in lithography, and it includes mask types such as binary, alternating phase-shift, and attenuated phase-shift, as well as various hybrid mask types. Placement of such a mask in the radiation beam causes selective transmission (in the case of a transmissive mask) or reflection (in the case of a reflective mask) of the radiation impinging on the mask, according to the pattern on the mask. In the case of a mask, the support ~~structure~~ will generally be a mask table, which ensures that the mask can be held at a desired position in the incoming radiation beam, and that it can be moved relative to the beam if so desired.

Page 1, delete the paragraph [0004] and replace it with the following new paragraph:

[0004] Another example of a patterning device is a programmable mirror array. One example of such an array is a matrix-addressable surface having a viscoelastic control layer and a reflective surface. The basic principle behind such an apparatus is that, for example, addressed areas of the reflective surface reflect incident light as diffracted light, whereas unaddressed areas reflect incident light as undiffracted light. Using an appropriate filter, the

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undiffracted light can be filtered out of the reflected beam, leaving only the diffracted light behind. In this manner, the beam becomes patterned according to the addressing pattern of the matrix-addressable surface. An alternative embodiment of a programmable mirror array employs a matrix arrangement of tiny mirrors, each of which can be individually tilted about an axis by applying a suitable localized electric field, or by employing piezoelectric actuators. Once again, the mirrors are matrix-addressable, such that addressed mirrors will reflect an incoming radiation beam in a different direction to unaddressed mirrors. In this manner, the reflected beam is patterned according to the addressing pattern of the matrix-addressable mirrors. The required matrix addressing can be performed using suitable electronics. In both of the situations described hereabove, the patterning device can comprise one or more programmable mirror arrays. More information on mirror arrays as here referred to can be seen, for example, from United States Patents U.S. 5,296,891 and 5,523,193, and PCT publications WO 98/38597 and WO 98/33096. In the case of a programmable mirror array, the support ~~structure~~ may be embodied as a frame or table, for example, which may be fixed or movable as required.

Page 2, delete the paragraph [0005] and replace it with the following new paragraph:

[0005] Another example of a patterning device is a programmable LCD array. An example of such a construction is given in U. S. Patent 5,229,872. As above, the support ~~structure~~ in this case may be embodied as a frame or table, for example, which may be fixed or movable as required.

Page 2, delete the paragraph [0007] and replace it with the following new paragraph:

[0007] Lithographic projection apparatus can be used, for example, in the manufacture of integrated circuits (IC's). In such a case, the patterning device may generate a circuit pattern corresponding to an individual layer of the IC, and this pattern can be imaged onto a target portion (e.g. comprising one or more dies) on a substrate (silicon wafer) that has been coated with a layer of radiation-sensitive material (resist). In general, a single wafer will contain a whole network of adjacent target portions that are successively irradiated via the projection system, one at a time. In current apparatus, employing patterning by a mask on a mask table, a distinction can be made between two different types of machine. In one type of lithographic

projection apparatus, each target portion is irradiated by exposing the entire mask pattern onto the target portion at once. Such an apparatus is commonly referred to as a wafer stepper. In an alternative apparatus, commonly referred to as a step-and-scan apparatus, each target portion is irradiated by progressively scanning the mask pattern under the ~~projection~~ radiation beam in a given reference direction (the "scanning" direction) while synchronously scanning the substrate table parallel or anti-parallel to this direction. Since, in general, the projection system will have a magnification factor M (generally < 1), the speed V at which the substrate table is scanned will be a factor M times that at which the mask table is scanned. More information with regard to lithographic devices as here described can be seen, for example, from U.S. Patent 6,046,792.

Page 4, delete the paragraph [0011] and replace it with the following new paragraph:

[0011] According to an aspect of the present invention a method of manufacturing a component that will, in use, experience a thermal load and will be operated at a mean temperature, includes selecting a material having a coefficient of thermal expansion having a zero-crossing at a first temperature and manufacturing the component using the selected material at a second temperature. The first temperature is between the second temperature and the mean operating temperature. ~~Deformation~~ Deformations of the component at the mean operating temperature are thus minimized.

Page 6, delete the paragraph [0016] and replace it with the following new paragraph:

[0016] According to an even further aspect of the present invention there is provided a device manufacturing method including ~~providing a substrate at least partially covered by a layer of radiation-sensitive material and~~ providing a beam of radiation using a radiation system. The method also includes using a patterning device to endow the beam of radiation with a pattern in its cross-section and projecting the patterned beam of radiation onto a target portion of the layer of radiation-sensitive material at least partially covering a substrate using a projection system. At least one component of the radiation system and/or projection system that experiences a thermal load in use is made of a low coefficient of thermal expansion material such that the coefficient of thermal expansion has a zero-crossing temperature between a

manufacturing temperature of the component and a ~~means~~ mean operating temperature of the component.

Page 7, delete the paragraph [0024] and replace it with the following new paragraph:

[0024] Figure 1 schematically depicts a lithographic projection apparatus 1 according to an exemplary embodiment of the invention. The apparatus 1 includes a base plate BP; a radiation system Ex, IL constructed and arranged to supply a ~~projection~~ beam PB of radiation (e.g. EUV radiation), which in this particular case also comprises a radiation source LA; a first object table (mask table) MT provided with a mask holder that holds a mask MA (e.g. a reticle), and connected to a first positioning device PM that accurately positions the mask with respect to a projection system or lens PL; a second object table (substrate table) WT provided with a substrate holder that holds a substrate W (e.g. a resist-coated silicon wafer), and connected to a second positioning device PW that accurately positions the substrate with respect to the projection system PL. The projection system or lens PL (e.g. a mirror group) is constructed and arranged to image an irradiated portion of the mask MA onto a target portion C (e.g. comprising one or more dies) of the substrate W.

Page 7, delete the paragraph [0026] and replace it with the following new paragraph:

[0026] The source LA (e.g. a discharge or laser-produced plasma source) produces ~~a beam of~~ radiation. This ~~beam~~ radiation is fed into an illumination system (illuminator) IL, either directly or after having traversed a conditioning device, such as a beam expander Ex, for example. The illuminator IL may comprise an adjusting device AM that sets the outer and/or inner radial extent (commonly referred to as σ-outer and σ-inner, respectively) of the intensity distribution in the beam. In addition, it will generally comprise various other components, such as an integrator IN and a condenser CO. In this way, the beam PB impinging on the mask MA has a desired uniformity and intensity distribution in its cross-section.

Page 8, delete the paragraph [0029] and replace it with the following new paragraph:

[0029] The depicted apparatus can be used in two different modes:

1. In step mode, the mask table MT is kept essentially stationary, and an entire mask image is projected at once, i.e. a single "flash," onto a target portion C. The substrate table WT is then shifted in the X and/or Y directions so that a different target portion C can be irradiated by the beam PB;

2. In scan mode, essentially the same scenario applies, except that a given target portion C is not exposed in a single "flash." Instead, the mask table MT is movable in a given direction (the so-called "scan direction", e.g., the Y direction) with a speed v, so that the ~~projection~~ beam PB is caused to scan over a mask image. Concurrently, the substrate table WT is simultaneously moved in the same or opposite direction at a speed $V = Mv$, in which M is the magnification of the lens PL (typically, $M = 1/4$ or $1/5$). In this manner, a relatively large target portion C can be exposed, without having to compromise on resolution.